or where the disease is situated deeper than the frontal sinus, the diseased action may extend through the orbital plate of the frontal bone into the cavity of the cranium, to the membranes of the brain, and cause death.

These varieties will be readily explained by attending to the different forms in which periostitis presents itself, either simple thickening of the periosteum, or deposit of serum, cartilage, bone, or pus between it and the bone. In cases of pain in the orbit, &c., pressure should always be made directly upwards on the roof of the orbit; acute persistent tenderness in that situation being one of the most decided marks of the disease.—*Ranking's Abstract*, from *Dublin Journal*, July 1845.

55. *Muscæ Volitantes.*—Dr. Mackenzie (*Edin. Med. and Surg. Journ.*, July, 1845), has contributed a long and elaborate paper on the "Vision of Objects on and in the Eye," otherwise on the various kinds of *muscæ volitantes;* and having analyzed at length the several opinions of writers on the nature and causes of these spectra, he considers them in the following systematic order:—1. *The muco-lachrymal spectrum*, which is generally invisible to the naked eye, but may be usually seen in the form of dark globules (capable of being removed, or having their position changed, by nictitation), when looking through the microscope, or still more distinctly and certainly when viewing a candle, placed at some twenty feet distant, through a deep concave lens. This spectrum is the result of each globule of the muco-lachrymal secretion lying on the cornea, acting on the small pencil of divergent light thus allowed to fall upon it, which it converges sufficiently as (together with the refraction of the transparent media of the eye) to bring it to a focus on the retina, where are consequently produced as many multiplications of the image of the candle as there are globules.—2. *Spectre depending on corpuscles between the cornea and vitreous humour.* These also are ordinarily invisible to the naked eye; but their presence may be detected by the same method as was indicated for the muco-lachrymal spectrum, from which they may be distinguished by not suffering displacement or nictitation, by occupying a posterior plane in the field of view, and by the double images which these corpuscles form on exposing the eye to two divergent beams of light (as in Sir David Brewster's experiment with two candles), being less separated from one another than the double images of the muco-lachrymal spectrum. From corpuscles residing in the vitreous humour they will be distinguished by their occupying an anterior plane in the field of view, by their double images being more widely separated, and by the possibility of readily inverting their spectrum by simply carrying forward the convex lens (through which the candle is being viewed in the experiment) from the eye, so that the cornea is no longer within the focal distance of the lens. In this latter circumstance it would seem that if, by shifting the focus of the rays which impinge on the retina, we find that the corpuscles (the situation of which is the object of investigation) are at one time anterior and at another posterior to that focus, and their spectrum thereby inverted; this proves that they are situated in the anterior part of the eye; whereas if the spectrum cannot be thus inverted, the cause must reside in the vitreous humour. 3. *Spectra depending on corpuscles in or behind the vitreous humour.* These are of four different kinds, and may be seen by looking at the sky through a pin-hole aperture in a card, or more distinctly by looking at the flame of a candle, two or three feet distant, through the eye-glass of a compound microscope. In this last experiment "four sets of spectra will be seen, independent of the muco-lachrymal spectrum. The most remarkable one appears nearest to the eye, and consists of twisted strings of minute pearly globules hung across the field of view; this I shall call the *pearly spectrum.* These strings are of various forms and lengths; they also vary in number, sometimes existing in such large quantity as to be troublesome in ordinary vision, giving rise to another form of muscæ volitantes, which appear usually as a thin cloud, somewhat like the wing of a fly, or as semi-opaque threads, like a spider's web, or of blackish soot-like particles, dancing before the eyes. Sometimes the threads terminate in a kind of bulb. The pearl-like globules, of which the threads are composed, vary in size, and seem joined together merely by apposition, without being contained

in a tube.* The second in point of remarkableness, and the farthest from the eye, consist of watery-like threads, destitute of any globular appearance, and depending chiefly from the upper part of the field, easily seen at the lower part: this I call the *watery* spectrum, merely from its appearance, for I have ascertained neither its seat nor its nature. The depending threads of which this spectrum consist have a somewhat rounded appearance, differing in this respect from the pearly muscæ, the threads of which seem flat. Each of the watery threads is bounded by two dark lines, within which there is a broad space, which is clear and entirely destitute of anything like globules. These watery threads measure fully twice the diameter of the threads of the pearly spectrum. They are generally six or eight in number, not all situated in the same plane. Their general course is vertical, and generally flexuous: they often divide at their lower extremity, into two or more branches, which seem to melt away insensibly. They have so much the appearance which streams of tears, flowing over the cornea, might be supposed to present, that they might be readily mistaken for them, but from their lying in a plane posterior to the muco-lachrymal spectrum. At first sight they seem to slide down slowly from the upper to the middle part of the field of view; but they possess neither the extent nor the quickness of motion of the pearly spectrum. Any bending or extending which they undergo in the movements of the eye is slight, and although seemingly displaced and broken into fragments by nictitation, they are not really so. This watery spectrum sometimes becomes much exaggerated, and then produces the sensation of muscæ volitantes in ordinary vision. It is frequently compared to the appearance of threads of spun glass, laid across each other, or to that of a fine lock of wool, and occasionally, by one or two forcible acts of nictitation, they may be dispersed. In two distinct planes between the *watery* and *pearly* spectrum are placed two sets of insulated globules, which I call the *insulo-globular* spectra. The globules composing the set farthest from the eye are hazy and ill-defined, and may be compared to small grains of sago; those nearest to the eye are clear in the centre, exterior to which they present a sharp black ring, and still more exteriorly, a lucid circumference. The above four sets of spectra never mingle with one another, so as to change the order in which they stand before the eye; but the pearly spectrum always appears the nearest; then the sharply-defined insulo-globular; then the obscurely-defined globules; and, farthest away, the watery threads. That the corpuscles which produce these four sets of spectra are situated in, or within the vitreous, and not, as Donné (*Archives Gén. de Méd.*, t. xxii., p. 115) supposed, in the aqueous humour, is manifest from the fact that none of these spectra can be inverted by viewing them through a concave lens, or by first viewing them through a convex lens held close to the eye, and then carrying the lens forwards from the eye, so that the eye is beyond the focal distance of the lens, experiments which at once invert the muco-lachrymal spectrum, and would, it is presumed, do the same to any spectrum depending on the state of the aqueous humour of the crystaline. 4. The next variety of spectrum Dr. Mackenzie describes is the *circulatory* one. It is frequently observed after sneezing, coughing, or any kind of straining, especially when performed with the eyes open, and appears in the form of numberless minute lucid points, darting about in all directions, an effect which Dr. Mackenzie thinks may probably be due to the passage of blood-corpuscles through the vessels of the choroid. 5. His last variety is the *vascular* spectrum, a term applied to certain fixed muscæ, as those produced in Purkinje's well-known experiment, in which the blood-vessels and central spot of the retina are brought into view, as also the numerous class of phenomena known by the names of *accidental colours* and *ocular spectra.—Kirke's Report in Ranking's Abstract*, vol. ii.

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* Dr. Mackenzie enters very minutely into the subject of the probable seat and cause of the pearly spectrum, and after analyzing at length the opinions of the various writers who have regarded the pearly corpuscles as situated on the surface of the cornea, within the aqueous humour, the imagined humour of Morgagni, the vitreous humour, the space between the hyaloid membrane and the retina, the retina and the choroid, he concludes that in all probability the vitreous humour is their seat (which view is also entertained by Dr. Jago, and by others). What the cause may be is still obscure; Dr. Mackenzie inclines to the notion that the contracted (or probably obliterated) capsular arteries which traverse the vitreous humour may contain arrested blood-globules, and so give rise to the appearance which the pearly spectrum presents; whilst Dr. Jago (London Med. Gaz., May 16, 1845) seems to regard them as caused by fringes or processes of the hyaloid membrane, or deposits within this membrane.

56. *Cure of Strabismus.—Ligatures on the Recti Muscles of the Eye.*—Dieffenbach appears to have been the first, in 1842, to apply a ligature to the divided end of the muscle for the purpose of rendering the cure of strabismus by operation more perfect. Mr. Wilde, of St. Mark's Ophthalmic Hospital, has been the first to resort to this method extensively in this country. He has employed it in at least eighteen patients, including cases of both convergent and divergent strabismus. When there is reason to believe that division of the tendon will not rectify the deformity, which circumstance may frequently be determined beforehand, the portion of the muscle attached to the sclerotica should be left longer than usual, by dividing it between the hook and its origin, as far back as can be safely managed. Having curved a small sewing-needle, about No. 7, and armed it with a fine ligature, the end of the muscle attached to the sclerotica has to be seized with a fine-toothed forceps, and the thread passed twice through it, drawing it tight the second time, so as to secure firmly a piece of the divided tendon. By this means a power is attained over the globe, which will carry it in any direction. In fixing the ligature, care should be taken to fasten it by a second coil into the muscle; otherwise, if allowed to play in a loop, it will cut through before the object is effected. The loose end of the ligature is to be attached, by means of adhesive straps, to the middle of the nose, or to the malar bone, so as to draw the globe of the eye in the direction required. The length of time it must remain on varies according to circumstances, but, as a rule, it should never be removed while it continues on the stretch, or in other words, till the eye has completely righted itself, either by the action of the other muscles, or by the fixed position, "the setting," of the globe in its new aspect. The patient appears to experience but little inconvenience. In some instances the ligatures have been applied to both eyes, and Mr. Wilde suggests that a ligature might be tied without dividing the muscle where strabismus is caused by permanent spasm, or shortening of the internal rectus, or paralysis of the abductor, and also for the purpose of restoring to a straight position those eyes that have become over-divergent after the usual operation.—*Ancell's Report,* from *Dublin Journal,* Nov., 1845.

MIDWIFERY.

57. *Two cases of Labour protracted by Insuperable Rigidity of the Os Uteri—with remarks.* By John C. Lever, M.D. (*Guy's Hospital Reports,* Oct., 1145.)—In this interesting paper the author gives the history of two cases of labour protracted by insuperable rigidity of the os uteri. In the first case, which the author saw in consultation with Mr. Dry, various remedies were tried without overcoming the rigidity; and a portion of the os and cervix of the uterus was separated during labour and expelled. The patient died. The second case Dr. Lever saw in consultation with Mr. Evans. He divided the whip-cord margin of the os uteri towards the posterior part of the sides of the pelvis, in the direction of either sacro-iliac sychondrosis. The incisions were made during the contraction of the uterus and gave no pain. The labour then went on and terminated favourably.

In his remarks Dr. Lever refers to other cases of a similar character, and concludes with the following propositions:—

1st. That insuperable rigidity of the os uteri occasionally occurs, over which the usual remedies exercise no influence.

2. That such insuperable rigidity may lead to a partial or complete separation of the cervix.

3. That, to prevent such a serious lesion, two methods of treatment have been recommended; the one consisting in artificial dilatation; the other, in incising the rigid and contracted os uteri.